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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,003	Applicant(s) KOMENO, JUNICHI	
	Examiner Eueng-nan Yeh	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>Mar 24, 2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention, "OSD COMPOSITE IMAGE DECODING APPARATUS, OSD COMPOSITE IMAGE DECODING METHOD, PROGRAM, AND RECORDING MEDIUM" is too general to reveal the real intention to which the claims are directed. A new title is suggested: "An on-screen-display composite image decoding system suitable for plural display devices with different resolutions".

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship

among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).
"Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 11 and 12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 11 defines a computer program and claim 12 defines a medium embodying functional descriptive material. However, the claims do not define a computer-readable medium or computer-readable memory and are thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent such as "A computer readable medium stores a program ..."; assuming the specification does

NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sita et al. (US 6,539,120 B1) and Kobayashi (US 6,275,267 B1).

Regarding claims 1 (apparatus), 10 (method), and 11 (program), Sita discloses an OSD image composite system comprising:
decoding plural types of compressed image data which are different in image resolution format from each other (as depicted in figure 1A: " FIG. 1A shows a system employing an exemplary embodiment of the present invention for receiving and decoding encoded video information at MP@HL or at MP@ML, formatting the decoded information to a user selected output video format (which includes both video and audio information), and interfaces for providing the formatted video output signals to display devices" at column 5, line 62);

first image resolution format conversion means of converting decoded image data decoded by said image decoding means to a first image resolution format and outputting said decoded image data thus converted when said decoded image data has an image resolution format other than said first image resolution format while outputting said decoded image data without conversion when said decoded image data has said first image resolution format (as depicted in figure 1A, numeral 121: "The ATV Video Decoder 121 further includes a memory subsystem to control decoding operations using an external memory which provides image picture information and a display section to

process decoded picture information into a desired picture format. The ATV Video Decoder 121 employs the Decoder Memory 130 to process the high resolution encoded video signal ..." at column 6, line 41);

generating OSD for said first image resolution format outputted from said first image resolution format conversion means (as depicted in figure 1B, "An optional On-Screen Display (OSD) section in the Memory 130 may be available to support OSD data. The interface between the Memory Subsystem 174 and Memory 130 may be a Concurrent RDRAM interface providing a 500 Mbps channel, and three RAMBUS channels may be used to support the necessary bandwidth" at column 22, line 50);

second image resolution format conversion means of converting said image data having said first image resolution format to image data having a second image resolution format having a lower resolution than said first image resolution format (as depicted in figure 1A, numeral 140: "The primary video output interface 140 includes a first Digital to Analog (D/A) converter (DAC) 141 (which actually has three D/A units for the luminance signal and the C_R and C_B chrominance signals) which may operate at 74 MHz, followed by a filter 142. This interface produces analog video signals having a 1125I or 750P format" at column 6, line 58. See also figure 2B, numeral 280 converts the input HD bit stream to lower resolution: "The Display Conversion Block 280 converts downsampled images into images for display on a particular display device having a lower resolution than the original image" at column 10, line 39);

third image resolution format conversion means of converting the image data having said first image resolution format to image data having a third image resolution format

having a lower resolution than said second image resolution format (as depicted in figure 1A, numeral 140: "The interface 140 and also includes a second (D/A) converter (DAC) 143 (also with three D/A units for luminance signal and C_R and C_B chrominance signals) which may operate at 27 MHz, followed by a filter 144 to produce for video signals having a 525I or 525P format" at column 6, line 63);

plural output terminals to be connected to display devices, respectively (as depicted in figure 11A "two output video signals are supported, a first output signal VID_{out1} which supports any selected video format, and a second output signal VID_{out2} which supports 525I (CCIR-601) only" at column 29, line 11);

output switching means connected to said OSD synthesis means, said second image resolution format conversion means and said third image resolution format conversion means and capable of inputting the image data having said first image resolution format; the image data having said second image resolution format and the image data having said third image resolution format and outputting them selectively (as depicted in figure 1B, numeral 173, "display section 173 of the ATV Decoder 121 of FIG. 1B is used to format the stored picture information (the decoded picture information) for a particular display format" at column 29, line 5. Thus, the decoder #121 is capable to connect and input various image resolution formats and as illustrated in figure 11A and discussed at column 29 lines 5 to 55 to select output);

processing means of instructing said output switching means to output image data that is compatible with an image resolution format which is displayable by respective display devices to be connected to said output terminals (as depicted in figure 11A, numeral

1150: "As would be known to one skilled in the art, the elements of the display section 173 are controlled by a controller 1150, which is set up by parameters read from and written to the microprocessor interface. The controller generates signal CNTRL, and such control is necessary to coordinate and to effect proper circuit operation, loading and transfer of pixels, and signal processing" at column 29, line 49).

Sita does not explicitly disclose the synthesis of the OSD data.

Kobayashi, in the same field of endeavor of video signal with different resolutions ("relates to an apparatus for performing various on-screen display on a screen of a television receiver" at column 1, line 11), discloses the mixing of video signal with the OSD signal as depicted in figure 12 "The display image forming circuit 18 forms a display image by using display sources from the display source memories 17A to 17D. The formed display image is developed into the OSD plane memory 19 and held. The received video signal and the OSD signal from the OSD plane memory 19 are mixed in the mixing circuit 16" at column 7, line 53. See also, "a character font set of a construction in which a display quality is held when an image of a resolution (vertical 1080 dots, horizontal 1920 dots) of the picture plane of the image format #1 is displayed on a CRT of 16:9 and a bit map constructed by a bit map image matched with the resolution have been stored in the display source memory 17A ..." at column 8, line 24. The object of the invention is "to provide a television receiver in which even when video signals of image formats of different resolutions are received, an OSD picture plane of a similar quality can be obtained and it is possible to prevent a display aspect ratio of an

OSD image from changing and the OSD image from being distorted" at column 5, line 32.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the OSD image composite system Sita made with OSD data superimposed on the image data as taught by Kobayashi, in order to avoid "the OSD image from being distorted" at column 5, line 37.

Regarding claim 2, image resolution format setting means of inputting and setting relation between each of said output terminals and an image resolution format which is displayable by said display device to be connected thereto (as depicted in Sita figure 2B, numeral 280, "... The Display Conversion Block 280 converts downsampled images into images for display on a particular display device ..." at Sita column 10, line 39.

Thus, the conversion block 280 get and derive relation between particular display device and image resolution format);

said processing means is operative to input said relation by said image resolution format setting means and gives an instruction according to said relation (depicted in Sita figure 11A, numeral 1150: "As would be known to one skilled in the art, the elements of the display section 173 are controlled by a controller 1150, which is set up by parameters read from and written to the microprocessor interface. The controller generates signal CNTRL, and such control is necessary to coordinate and to effect proper circuit operation, loading and transfer of pixels, and signal processing).

Regarding claim 3, image resolution format obtaining means provided between the output switching means and at least one of the plural output terminals and operative to obtain information indicative of the image resolution format of the display device to be connected to that output terminal and outputting the information to the processing means (discussed in claim 2, the image resolution format setting means will obtain information indicative of the image resolution format of the display device to be connected to that output terminal and output this information to the processing means).

Regarding claim 4, processing means is operative to judge a type of image resolution format which is allowed to be outputted based on stream information included in said decoded image data and control said output switching means (as depicted in Sita figure 1B, numeral 130, "... The memory 130 holds input bitstream, first and second reference frames used for motion compensated processing, and image data representing the field currently being decoded. The decoder includes 1) circuitry (picture processor 171) which stores and fetches the bitstream data, 2) circuitry that fetches the reference frame data and stores the image data for the currently decoded field in block format (Macroblock decoder 172), and fetches the image data for conversion to raster-scan format (display section 173)" at column 23, line 1. Thus, the processing means judges the image resolution format based on stream information and control the display).

Regarding claim 6, when plural ones of said display devices whose image resolution formats are different are connected to respective said output terminals, said processing means is operative to instruct said output switching means to output image data that is compatible with an image resolution format which is displayable by respective said display devices to be connected said output terminals (discussed in claim 1, the processing means "... controller generates signal CNTRL, and such control is necessary to coordinate and to effect proper circuit operation, loading and transfer of pixels, and signal processing" at Sita column 29, line 52. Thus, the processing means will instruct output switching means to have a proper image resolution form displayable for the output device).

Regarding claim 7, first image resolution format conversion means is operative to judge the image resolution format of said decoded image data by utilizing at least one of pixel clock frequency, horizontal synchronizing signal frequency and vertical synchronizing frequency of said decoded image data and determine an enlargement ratio to said first image resolution format based on said image resolution format thus judged (as depicted in Sita figure 11A, "two output video signals are supported, a first output signal VID_{out1} which supports any selected video format, and a second output signal VID_{out2} which supports 525I (CCIR-601) only. Each output signal is processed by separate sets of display processing elements 1101 and 1102, respectively, which perform horizontal and vertical upsampling/downsampling. This configuration may be preferred when the display aspect ratio does not match the aspect ratio of the input

picture ... All processing is performed at the internal clock rate except for control of the output signals V_{out1} or V_{out2} at Output Controllers 1126 and 1128, which is done at the pixel clock rate" at column 29, line 11).

Regarding claim 8, said processing means is operative to judge the image resolution format of said decoded image data from stream information included in said decoded image data (discussed in claim 4, stream information used to judge the image resolution format);
determine an enlargement ratio to said first image resolution format based on said image resolution format thus judged, and inform said first image resolution format conversion means of said enlargement ratio thus determined and said first image resolution format conversion means is operative to convert said decoded image data to said first image resolution format using said enlargement ratio thus given (discussed in claim 7, for the performance of horizontal and vertical upsampling/downsampling).

Regarding claim 9, said first image resolution format is 1080i image resolution format; said second image resolution format is 480p image resolution format; and said third image resolution format is 480i image resolution format (discussed in Sita tables 1 and 2, at column 8, the first image resolution format is 1920H X 1080V as 1125I, the second image resolution format is 704H X 480V as 525p, and the third image resolution format is 704H X 480V as 525i).

Regarding claim 12, recording medium carrying a program as recited in claim 11, which is operable by a computer (as depicted in Sita figure 1A, "includes a front end interface 100, a video decoder section 120 and associated Decoder Memory 130, a primary video output interface 140, an audio decoder section 160, an optional computer interface 110, and an optional NTSC video processing section 150" at column 6, line 10).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sita and Kobayashi as applied to claim 4 discussed above, and further in view of Hisatomi et al. (US 2002/0126984 A1).

Regarding claim 5, the Sita and Kobayashi combination discloses the compressed image data and stream information used. The Sita and Kobayashi combination does not explicitly teach the data source is DVD and the copy control from the stream information.

Hisatomi, in the field of endeavor of information recording/reproducing ("processing restrictive information such as copy-related information" in paragraph 3, line 3), teaches an application to a "recording/reproducing apparatus such as one adapted to use a DVD (digital versatile disk) ..." in paragraph 4, line 2, "... to coordinate copy control information of a hierarchical data structure. According to the invention, there are provided a method for coordinately processing copy information and an information recording/reproducing apparatus that are adapted to establish matching between copy control information on a video object unit basis and copy control

information on a video pack unit basis so that no pirated copies may be made nor reproduced" in paragraph 14, line 2. Thus, the compressed image data can be read out from a DVD and the stream information will include copy control information to avoid pirated copies.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to enable the OSD image composite system of the Sita and Kobayashi combination, to read compressed data from DVD and check copy control from stream information as taught by Hisatomi, such that "no pirated copies may be made nor reproduced" in paragraph 14, line 8.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Schumann et al. (US 6,078,328): DVD decoder with graphics element to be added to the overlay MPEG-2 image data.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eueng-nan Yeh whose telephone number is 571-270-1586. The examiner can normally be reached on Monday-Friday 8AM-4:30PM EDT.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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